UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
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Ref: 8ENF-AT

MAR 19 2015

Mr. Kurt M. Petersen, Vice President of Land and Legal
Slawson Exploration Company, Inc.
Rocky Mountain Division
1675 Broadway, Suite 1600
Denver, Colorado 80202

Re: Response to Slawson Exploration Company, Inc. Alternative Sampling Proposal

Dear Mr. Petersen:

This letter is in response to Slawson's Alternative Sampling Proposal dated March 11, 2015. On December 22, 2014, the EPA issued Slawson a Clean Air Act Section 114 Information Request (CAA 114 Request) regarding, among other items, control systems and closed vent design for Slawson's oil and natural gas production facilities located in North Dakota. Item #8 in the CAA 114 Request specifically requested pressurized liquid sampling results for 38 production sites located in and around the New Town, North Dakota area. Of those 38 production sites, 29 are located just west/southwest of New Town in an area Slawson commonly refers to as "The Loop", while the remaining nine production sites are localized into three additional general locations north and northwest of New Town (see Attachment 3). Based on Slawson's understanding of the homogenous composition of the crude oil in and around the New Town area and in an effort to reduce testing burden and cost, Slawson proposed an alternative sampling program.

Slawson's Proposed Alternative Sampling Program (as laid out in the March 11, 2015 letter):

1. Previous and Representative Sampling for 29 Production Sites in The Loop: In response to Request No. 8(a), Slawson will provide EPA with the pressurized oil analyses data previously reported by Questar for each of the 7 Production Sites. Slawson believes the previous sampling at these 7 Production Sites is representative of the other 29 Production Sites. The data and information for the 7 Production Sites is summarized in Attachment 1 and has previously been provided to EPA.[1]

2. Additional Produced Water Samples at 7 Production Sites in The Loop: In response to Request No. 8(a), Slawson will collect pressurized produced water samples for each of the 7 Production Sites.

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[1] Your March 11, 2015 letter included a heading for the discussion of these seven sites that was entitled "Slawson's Previous EPA-Approved Sampling Effort." Based on the information submitted to date, it appears that these seven sites were selected and sampled by Slawson without consultation or direction from the EPA and were merely sent, unprompted, to EPA and, as your letter indicated, "not objected to." That voluntary submission of sampling data is not at issue with respect to this response, but it is worth noting that a non-response from EPA to an unsolicited submission does not constitute EPA "approval" of such submission, nor retroactive "approval" of a sampling program.

3. Representative GBS RVP Data for 29 Production Sites in The Loop: In response to Request No. 8(b), Slawson will utilize its existing [Reid Vapor Pressures (RVP)] data from each of Slawson's four centralized [Gathering Booster Stations (GBS)] to characterize stabilized sales oil for producing wells within The Loop.

4. Representative Sampling for 9 Production Sites Outside of The Loop: In response to Request No. 8(a) and (b), Slawson will collect a pressurized oil, produced water, and sales oil sample at the Blackdog 3-13-14H, Jackal 1-17H, and Athena 1-36H (the "3 Production Sites"), which are geographically representative of the 9 Production Sites and depicted in the maps enclosed as Attachment 3.

EPA's Alternative Sampling Program Response:

The table below summarizes the EPA's response to each of the proposed sampling alternatives:

Slawson's Alternative Sampling Request	EPA's Response:
1. Previous and Representative Sampling for 29 Production Sites in The Loop: Collect no additional crude oil pressurized liquid samples in The Loop.	Perform crude oil pressurized liquid sampling at 9 sites total in The Loop (Sanish, Big Bend and Van Hook oil fields). Collect a low, medium, and high production sample in each field. See Attachment 2 for an updated list of sites to be sampled and analyzed.
2. Additional Produced Water Samples at 7 Production Sites in The Loop: Collect pressurized water samples at 7 sites in The Loop.	Perform produced water pressurized liquid sampling at the same 9 sites in The Loop required for crude oil pressurized liquid sample testing. See Attachment 2 for an updated list of sites to be sampled and analyzed.
3. Representative GBS RVP Data for 29 Production Sites in The Loop: Use existing RVP data from each of four GBS to characterize stabilized sales oil within The Loop.	Proposal accepted.
4. Representative Sampling for 9 Production Sites Outside of The Loop: Collect pressurized oil, produced water, and sales oil samples at 1 production site in each of three areas outside of The Loop.	Perform crude oil and produced water pressurized liquid sampling and sales oil sampling at 9 sites outside The Loop (Algers, Ross and Stockyard Creek oil fields). Collect a low, medium, and high production sample in each field. See Attachment 2 for an updated list of sites to be sampled and analyzed.

EPA's Alternative Sampling Program Rationale:

Slawson's Alternative Sampling Program Item #1: Based on the level of variability in the seven samples collected and analyzed in 2012 (Attachment 1), the EPA will consider reducing the number of crude oil pressurized liquid samples collected and analyzed per the CAA 114 Request. Provided that Slawson remains prepared to accept the analytical results from a reduced sampling program as

representative of its crude oil production and VOC emissions within The Loop, the EPA will allow nine current samples from The Loop, as chosen by the EPA below, to satisfy the crude oil pressurized liquid sampling portion of the CAA 114 Request. Current samples are required to ensure that the sampling is representative of current well characteristics in each of three oil fields located in The Loop.

The nine samples now required for sampling in The Loop have been selected by the EPA from each of the three oil fields comprising The Loop. Samples from low, medium, and high production well sites in each field shall be collected. The three fields are the Big Bend – Bakken, the Sanish – Bakken, and the Van Hook – Bakken oil fields. *See* Attachment 2 for an updated list of sampling sites. The low, medium, and high production values are based on oil produced and reported by Slawson on the "North Dakota State Industrial Commission [(NDIC)] January 2015 Oil and Gas Production Report" for each field. To accommodate Slawson's request for a sampling approach that would focus on obtaining pressurized liquids sampling data representative of crude oil production within and across areas as opposed to site-specific data for each production site, this sampling approach and the updated list of sampling sites includes wells that were not part of the original CAA 114 Request production sites.

Slawson's Alternative Sampling Program Item #2: As with Alternative Sampling Program Item #1, provided that Slawson remains prepared to accept the analytical results from a reduced sampling program as representative of its crude oil production and VOC emissions within The Loop, the EPA will allow produced water pressurized liquid sampling at the nine sampling sites in The Loop, as discussed in Alternative Sampling Program Item #1 above and listed in Attachment 2, to satisfy the produced water sampling portion of the CAA 114 Request. Sampling at the same nine sites as in Alternative Sampling Program Item #1 will ensure consistency in the facilities that have been sampled to enable Slawson and the EPA to produce an accurate emission inventory from these facilities.

Slawson's Alternative Sampling Program Item #3: Slawson has stated that the RVP data obtained from the commingled sales oil at the GBS sites is representative of the sales oil produced throughout The Loop. Given the low variability in RVP data and the low impact that variability in such data would have on tank emissions estimates, the EPA agrees that centralized testing for RVP from the four GBS rather than from the individual well sites within The Loop may therefore provide sufficient data points and thus accepts Slawson's proposed approach.

Slawson's Alternative Sampling Program Item #4: Similar to Alternative Sampling Program Item #1, the EPA requests three samples from each of the additional areas of oil and natural gas production. Based on production values reported to the NDIC by Slawson, the EPA has selected three wells sites (with low, medium, and high production) for crude oil and produced water pressurized liquid sampling and sales oil sampling in each of the three additional fields (Stockyard Creek – Bakken, Alger – Bakken and Ross – Bakken). *See* Attachment 2. By sampling three well sites in each field, Slawson and the EPA can analyze the data to identify outlier data that may suggest an error in sampling or analysis and can look for variations resulting from production levels and/or variability within an oil field.

We look forward to working with Slawson on this scaled back testing effort. Alexis North of the EPA will email an electronic version of the Updated Slawson Well Pad Specifics 3.16.15.xlsx (Attachment 2) to Ray Gorka at Slawson. If you have any questions regarding this response, please contact Alexis North, at 303-312-7005, or your counsel may contact Virginia Sorrell, at 303-312-6669.

Sincerely,

Cynthia J. Reynolds, Director
Air & Toxics Technical Enforcement Program

Enclosures: 1) Attachment 1- Previous Slawson Sampling Results
2) Attachment 2- Updated Slawson Well Pad Specifics 3.16.15.xlsx
3) Attachment 3- Slawson Alternative Sampling Map

cc: Kenny Malmquist, SLR International Corporation
Randy Dann, *Esq.*, Davis Graham & Stubbs LLP
Carson Hood, Acting Administrator, MHA Energy Division
Jack Craig, Regulatory Affairs Officer, MHA Energy Division
Edmund Baker, Environmental Director, MHA Nation
Terry O'Clair, North Dakota Department of Health
Jim Semerad, North Dakota Department of Health
Virginia Sorrell, EPA-Region 8
Scott Patefield, EPA-Region 8
Alexis North, EPA-Region 8

ATTACHMENT 1- Previous Slawson Sampling Results

Slawson Exploration Company, Inc.

Summary of Hydrocarbon Analyses of Pressurized Crude Oil Samples Collected and Analyzed by Questar Applied Technology

Site/Sample	1	2	3	4	5	6	7	
Analysis Date/Time:	1/31/2012	1/31/2012	1/31/2012	1/31/2012	1/31/2012	1/31/2012	1/31/2012	
Analyst Initials:	PRP	PRP	PRP	PRP	PRP	PRP	PRP	
Sample Temp. (°F):	**121**	**45**	**50**	**50**	**20**	**80**	**108**	
Sample Pres. (psig):	**40**	**35**	**65**	**55**	**40**	**45**	**40**	
Date Sampled:	1/23/2012	1/21/2012	1/22/2012	1/22/2012	1/21/2012	1/23/2011	1/23/2012	
Site/Well:	**Atlantis 1-34-35H**	**Cannonball 3-27-34H**	**Jaguar 2-23H**	**Osprey 1-26-25-30H**	**Pathfinder 1-9**	**Spyder 1-17H**	**Stallion 2-1-12H**	**Average**
Field:	Van Hook	Van Hook	Big Bend	Van Hook	Sanish	Big Bend	Big Bend	
ML#:	Slawson Exp.	Slawson Exp.	Slawson Exp.	Slawson Exp.	Slawson Exp.	Slawson Exp.	Slawson Exp.	
GC Method:	Quesliq1.M	Quesliq1.M	Quesliq1.M	Quesliq1.M	Quesliq1.M	Quesliq1.M	Quesliq1.M	
Data File:	QPC87.D	QPC90.D	QPC89.D	QPC88.D	QPC84.D	QPC85.D	QPC86.D	
Instrument ID:	1	1	1	1	1	1	1	
Component	**Mol%**	**Mol%**	**Mol%**	**Mol%**	**Mol%**	**Mol%**	**Mol%**	
CO2	0.0223	0.0000	0.0386	0.0248	0.0223	0.0285	0.0309	
N2	0.0000	0.0000	0.0118	0.0075	0.0081	0.0389	0.0081	
C1	0.5431	0.3646	1.1823	0.8114	0.6650	0.7687	1.1695	0.7864
C2	2.7900	2.2987	4.6510	2.9803	2.7493	4.1758	3.3956	3.2915
C3	9.0499	9.1227	11.0319	9.4400	9.7043	11.3957	6.9959	9.5343
IC4	2.1248	2.4007	2.2502	2.2483	2.3632	2.3832	1.5820	2.1932
NC4	10.5990	11.2305	10.8340	11.0238	11.2971	11.5798	8.2476	10.6874
IC5	3.7686	4.1165	3.5776	3.9181	4.2353	3.8016	3.3831	3.8287
NC5	6.9813	7.0128	6.5921	7.0541	6.8553	7.0621	6.4521	6.8585
Hexanes	4.4963	4.4401	3.7265	3.8009	4.7473	4.0626	3.9754	4.1784
Heptanes	13.3672	12.3534	11.8066	12.1328	11.6301	11.8597	13.6055	12.3936
Octanes	7.9920	8.5646	7.6701	7.8942	7.9815	7.1807	8.5406	7.9748
Nonanes	5.3102	5.4454	5.5174	5.2055	5.3899	4.6387	5.6358	5.3061
Benzene	0.2958	0.1587	0.3793	0.3841	0.2074	0.3491	0.4571	0.3188
Toluene	0.6135	0.4273	0.5816	0.6620	0.4344	0.6323	0.8578	0.6013
E-Benzene	0.6307	0.7402	0.5450	0.6584	0.6201	0.5224	0.5765	0.6133
Xylene	1.2060	1.0129	1.1875	1.1469	1.0280	1.1443	1.5167	1.1775
n-C6	3.7375	3.2396	3.1248	3.1523	3.1355	3.5128	4.0016	3.4149
2,2,4-TMP	1.7187	2.4521	1.8475	2.0275	2.2798	1.3617	1.4921	1.8828
C10+	24.7539	24.6188	23.4438	25.4275	24.6463	23.5012	28.0763	24.9239
C10+ MW	161.5718	161.6606	161.4978	161.2332	162.4364	162.5834	162.0577	161.8630
C10+ SG	0.7467	0.7468	0.7467	0.7465	0.7472	0.7473	0.7470	0.7469
Total	100.0008	99.9991	99.9996	100.0004	100.0002	99.9998	100.0002	99.9655

ATTACHMENT 1

ATTACHMENT 2- Updated Slawson Well Pad Specifics 3.16.15.xlsx

SLAWSON EXPLORATION COMPANY, INC. ResponseToQuestions

ENCLOSURE 5a- Updated March 16, 2015 based on Alternative Sampling Request from Slawson

REQUEST # >>>			3		4			5			6			7(a)	
Field Name	Production Values Based on NDIC January 2015 Production Report per Field	Tank Battery Location Name	Are the tank battery location names correctly associated with their common tank vapor capture system es? [Yes or No]	If incorrect, provide correct identification and explain. [Add or delete rows as necessary to include all associated tanks with common tank vapor capture systems]	Did Slawson conduct a design analysis of the tank vapor capture system & control device prior to its construction? [Yes or No]	If yes, what was the date the analysis was conducted? [Date]	Supply all documents supporting the design analysis of each tank vapor capture system and control device [List the filename if provided electronically or an Attachment name identifier if hard copy]	Did Slawson conduct a design analysis of the tank vapor capture system & control device since its construction? [Yes or No]	If yes, what was the date each such analysis was conducted? [Date]	Supply all documents supporting each design analysis of each tank vapor capture system and control device [List the filename if provided electronically or an Attachment name identifier if hard copy]	For tank vapor capture systems for which analyses are not already provided in Requests 4 & 5, conduct an analysis and supply all input parameters, calculations and supporting documents of the design analysis of each tank vapor capture system and control device. [List the filename if provided electronically or an Attachment name identifier if hard copy]	Quantify the peak total emission flow due to flash emissions attributed with liquid dump events from the pressurized vessel upstream of the storage tanks, along with working, breathing and standing emissions. [cubic feet/hr]	What is the flow capacity of the existing tank vapor capture system(s) and control device(s)? [cubic feet/hr]	Piping & instrumentation diagram of the process (wellhead(s) to control device). [List the filename if provided electronically or an Attachment name identifier if hard copy]	If more than one storage tank is present within a tank vapor capture system, describe how oil/condensate flows between storage tanks.
Sanish	Med	Wallewa Federal 2-12-11TFH													
Sanish	High	Wallewa Federal 1-12-11H													
Sanish	Low	Wallewa Federal 4-12-11TFH													
Big Bend	Low	Whirlwind #1-31H													
Big Bend	Med	Challenger Federal 2-29-32H*													
Big Bend	High	Zephyr Federal 2-36H													
Van Hook	Low	Pavers 2-21H													
Van Hook	Med	Revolver 2-26H													
Van Hook	High	Vagabond 1-27H*													
Alger	Low	Athena 1-26H													
Alger	Med	Athena 5-26TFH													
Alger	High	Athena 3-26H													
Ross	Low	Jackal 1-17H													
Ross	Med	Ann Hatton Federal 3-31-30H													
Ross	High	Ann Hatton Federal 2-31-30H													
Stockyard	Low	Martin Boy 2-4 5H*													
Stockyard	Med	Coopers 2-15-14 44HBC*													
Stockyard	High	Bootleg 4-14-15TFH*													

* Indicates production sites not on the December 2014 CAA 114 Information Request

7(b)		7(c)			7(d)	7(d)(i)	7(d)(i)	7(d)(ii)	7(d)(iii)		7(e)	7(e)(i)	7(e)(ii)	7(f)(i)	7(f)(ii)
Identify the gas gathering pipeline into which the tank battery location enters. [Name of PL(s)]	What is the maximum allowable operating pressure of that pipeline? [psig]	Provide a list of the wells which flow to the initial separator(s) [Well name and API No.]	How is production from those wells set to flow to the initial separator(s) (e.g. continuous, based on time, pressure, other parameter(s), or a combination of these)?	Can more than one well flow to an initial separator concurrent with another well or wells?	Provide a description, name and tag # ID of the initial separator(s) (e.g. single stage, dual stage, dual cell, HLP, VGR, etc.).	1st Stage - Maximum operating pressure and temperature. [psig and °F]	2nd Stage - Maximum operating pressure and temperature. [psig and °F] If applicable]	2nd Stage - describe where flash emissions from this stage is routed. [If applicable]	Does the final separator stage feature a device on the liquid outlet line to prevent a vortex from forming during a liquid dump event? [Yes or No]	If yes, provide a narrative description.	Is there an intermediate separation vessel(s) between the initial separator and the storage tank(s)? [Yes or No]	Intermediate separation vessel - Maximum operating pressure and temperature. [psig and °F] If applicable]	Describe where flash emissions from the intermediate separation vessel(s) are routed. [If applicable]	Oil/condensate outlet pipe interior diameter from the separation vessel immediately upstream of the storage tank(s). [inches]	Produced water outlet pipe interior diameter from the separation vessel immediately upstream of the storage tank(s). [inches]

7(g)(i)	7(g)(ii)	7(h)(i)	7(h)(ii)	7(i)	7(j)(i)	7(j)(ii)	7(j)(iii)	7(j)(iv)		7(j)(v)		7(k)(i)	7(k)(ii)	7(l)	7(m)(i)	7(m)(ii)	7(m)(iii)
Oil/condensate outlet pipe orifice plate diameter and make, model, size and trim of the liquid dump valve from the separation vessel immediately upstream of the storage tank(s). [inches]	Produced water outlet pipe orifice plate diameter and make, model, size and trim of the liquid dump valve from the separation vessel immediately upstream of the storage tank(s). [inches]	Describe whether the oil/condensate is trucked or piped offsite from the storage tank(s). If neither, provide an explanation.	Describe whether the produced water is trucked or piped offsite from the storage tank(s). If neither, provide an explanation.	Is the flow of liquid from the separation vessel immediately upstream of the storage tank(s) continuous or in intermittent batches?	If intermittent batches, what triggers a liquid dumping event?	Maximum oil/condensate volume of the separation vessel immediately upstream of the storage tank(s). [barrels]	Maximum produced water volume of the separation vessel immediately upstream of the storage tank(s). [barrels]	Average daily oil/condensate production during July 2014. Exclude any duration the well was not in operation. [bbl/day]	Peak instantaneous flow rate of oil/condensate during dump event from the separator to the storage tank(s). [gallons/minute]	Average daily produced water production during July 2014. Exclude any duration the well was not in operation. [bbl/day]	Peak instantaneous flow rate of produced water during dump event from the separator to the storage tank(s). [gallons/minute]	Maximum pump rate of the oil/condensate from the separator to the storage tank(s). [gallons/minute]	Maximum pump rate of the produced water from the separator to the storage tank(s). [gallons/minute]	For each tank vapor capture system, provide the number of associated storage tank(s) and their volume. [# and barrels]	Pressure relief settings (psi) on the thief hatch and pressure relief valve on the storage tank(s) or tank vapor capture system. Note any changes in pressure relief settings that may have occurred and date when changed. [psi & Date]	Thief hatch gasket/seal information, including the type of gasket/seal used (e.g. rubber, Viton).	Pipe length from the storage tank(s) to the control device (if the vapor capture system collects vapor from multiple tanks, use the average pipe length for all the condensate storage tanks to the control device). [feet]

7(m)(iv)	7(m)(v)	7(m)(vi)	7(m)(vii)	7(m)(viii)	7(m)(ix)	7(m)(x)	7(m)(xi)	7(m)(xii)	7(n)	7(n)(i)	7(n)(ii)	7(n)(iii)	8(a)	8(b)	
Inner pipe diameter of the tank vapor capture system from the storage tank(s) to the control device. [inches]	Number of short radius elbows (short radius elbows have a radius equal to the pipe diameter). [#]	Number of long radius elbows (long radius elbows have a radius 1.5 times the pipe diameter) [#]	Number and type of valves (e.g. gate, check, globe, etc.). [# and Type]	Rated pressure loss across the combustor (combustion device) burner assembly as provided by the manufacturer of the combustion device. [psi]	Describe any low points in the tank vapor collection system piping where liquids could accumulate. Describe the frequency of draining these liquids. Describe the indicator, if any, that notifies the operator that liquids must be drained.	Set-point pressure and maximum flow capacity of any backpressure valves installed on the vapor collection system. [ounces/in² and scf/hr]	Flame arrestor information including make, model, size [list the filename if provided electronically or an Attachment name identifier if hard copy]	Provide a narrative description of the operations and maintenance program Slawson employs to ensure emissions are minimized from the condensate tank(s), tank vapor capture system(s), thief hatch(es), pressure relief valve(s), and the frequency of such. [list the filename if provided electronically or an Attachment name identifier if hard copy]	Identify the type of control device used (e.g. combustion device, VRU, etc.).	The combustor manufacturer specifications showing the maximum flow rate of tank vapors under which a control efficiency of at least 98% for volatile organic compounds can be achieved. [list the filename if provided electronically or an Attachment name identifier if hard copy] [scf/hr]	The combustor manufacturer recommended maintenance and service requirements. [list the filename if provided electronically or an Attachment name identifier if hard copy]	Provide a narrative description of the servicing Slawson performs on the combustor(s) and the frequency of such. [list the filename if provided electronically or an Attachment name identifier if hard copy]	Filename of extended hydrocarbon liquid analysis of a pressurized oil sample from the pressurized vessel immediately upstream of the storage tank(s). [filename]	API Gravity of "sales oil" in oil/condensate storage tank.	Reid Vapor Pressure of "sales oil" in oil/condensate storage tank. [psia]

ATTACHMENT 3